ANNUAL REPORT

for the fiscal year
ending March 31, 1985

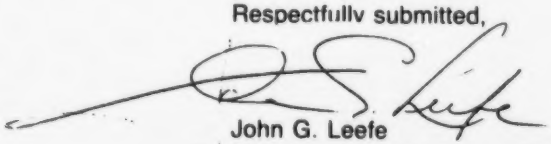
Department of Fisheries

To His Honour
The Honourable Alan R. Abraham, C.D.
Lieutenant-Governor of Nova Scotia

May It Please Your Honour:

I have the honour to submit herewith the Twenty-First Annual Report of the Department of Fisheries, for the fiscal year ending March 31, 1985.

Respectfully submitted,



John G. Leefe
Minister of Fisheries

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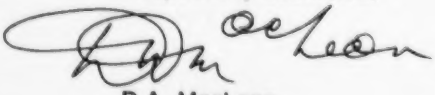


D.A. MacLean
Deputy Minister

CONTENTS

1. The Fishing Industry 9
2. Industrial Development 10
3. Fisheries Loan Board 15
4. Training and Field Service 18
   - Training 18
   - Field Service 22
5. Marine Resources 24
6. Estuarine and Inland Fisheries 26
7. Planning and Finance 34
8. Statistical Review 39
9. The Department of Fisheries 49

THE FISHING INDUSTRY

Total landings of commercial marine species in Nova Scotia declined in 1984.

Fishermen in the province landed 402,730 metric tons of fish, shellfish and marine plants in 1984, representing a 7.9 per cent decrease over the 1983 catch of 473,193 metric tons. The landed value of all species decreased 4.0 per cent to $265.3 million from $276.5 million.

Lobster again placed first in terms of being the most valuable species in 1984, returning $81.4 million to fishermen. Cod was second with a landed value of $56.9 million while scallops provided $43.5 million to fishermen in that sector of the industry.

All sectors of the fishery posted declines in landings with groundfish down 4.2 per cent, pelagic and estuarial down 6.2 per cent and molluscs and crustaceans down 23.1 per cent. Landed values for groundfish dropped 3.9 per cent, for pelagic and estuarial down 12.7 per cent and for molluscs and crustaceans down 2.9 per cent. Despite a significant drop in the landings of shellfish, strong prices for both scallops and lobsters kept the decline in landed value for this species group to a minimum.

The major highlight during the year in the fishing industry was the resolution to the protracted boundary dispute between Canada and the United States over Georges Bank. The World Court in The Hague awarded Canada roughly one-third of Georges Bank, including the lucrative scallop fishing grounds. Although heavy fishing has damaged the scallop stocks, large quantities of small scallops on the Canadian side of the new boundary line suggest a good future fishery for this species over the next several years.

INDUSTRIAL DEVELOPMENT

The objective of the Industrial Development Division is to assist in the further development of the fishing industry in areas such as fish quality, operational efficiency, infrastructure, and safety. These goals were achieved by providing both technical and financial assistance through the various programs of the division.

Financial assistance provided by the division was generally based on a 50 per cent cost-sharing arrangement with the applicant, up to a maximum contribution of $15,000. Technical assistance was also available upon request for projects undertaken by industry, with emphasis being given to innovative projects or to new technological developments.

Technology Development - Fishing Vessels

As part of the continuing program on fish-hold insulation and refrigeration, two vessels in the herring seine fleet were extensively surveyed to determine whether they had suffered any structural damage from fish-hold modifications. Neither vessel showed signs of deterioration and survey results are available for viewing at the department.

Both financial and technical support was provided to the processing sector in the equipping of a vessel to engage in the redfish fishery. Markets were secured in Japan and preliminary results are promising.

Technical staff provided input into a study on the various methods for fish-hold conversions and modifications. The study also dealt with the problems that may be encountered with each type of application.

Technology Development - Fishing Gear

Trials were conducted on a groundfish wash box for the inshore sector of the fishery and results were encouraging. Manufacture of this equipment has been transferred to the private sector and it is hoped that a cost-sharing program will be available in the next fiscal year.

Technical staff played an integral role in providing information, which indicated the benefits of this equipment, on the fishing operation of circle hooks. Data on catch rates was recorded for the department by various fishermen.

Preliminary work was started on the use of a modified inshore scallop drag. Construction and testing is to begin early in the new fiscal year.

The feasibility of establishing a shark fishery in Nova Scotia was investigated. Additional work is on-going in conjunction with the Marketing section of the department.

Technology Development - Shore Based Facilities

The technical staff continued to provide comprehensive guidelines and consultation services on construction practices for many of the shore based incentive programs. Onsite supervision by the division's engineers is often necessary and they are assisted in the summer months by engineering students.

An innovative project was conducted in southwestern Nova Scotia on the de-salination of harbour water for use in plants using a process known as reverse osmosis. Detailed information on this project is available from the department.

Ultra-violet light was tested for use in two areas of fish plant operation. Water purification appears to be a viable procedure and work is continuing in the use of such technology for the destruction of surface bacteria on freshly cut fillets.

Heat pump fish-drying systems were equipped with monitors to determine the cost benefits to respective processing operations. Further information is available from the department.

Product Technology and Process Development

The shellfish bait bag was tested in the offshore crab fishery as a means of furthering its development.

Considerable effort continued in the development of suitable bait substitutes for the longline fishery. Various combinations of artificial bait were tested throughout the year but results are still inconclusive.

Growth evaluations on various vegetable crops fertilized with fish silage products were conducted through the cooperation of the Agricultural Research Station in Kentville.

A wild mussel washing, sorting and grading machine prototype was

installed at a commercial mussel processing operation. Considerable interest has been expressed by the aquaculture community and development work is on-going.

Extensive research and product development was completed on a low salt (sodium) cured cod product with a major salt fish processor. Additional chemical analysis and market trials will be conducted during the next fiscal year.

Financial Incentives - Fishing Vessels

More than 150 individual applications were processed in this area of activity with emphasis on safety and quality improvements.

Safety is of utmost importance to the division and this was evident by the continuation of cost-sharing for the purchase of approved liferafts. In total, 132 applications were processed.

Over 14 fish-hold refrigeration and insulation projects were completed under a cost-sharing arrangement. Eligible applicants had to comply with construction guidelines developed for this type of vessel upgrading.

Four vessel owners were assisted in equipping their boats with propellor nozzles to take advantage of increased towing efficiency. Technical assistance was also provided on each installation.

Cost-sharing, on the basis of 50 per cent, was also provided to inshore fishermen wishing to equip their vessels with insulated fish storage containers.

Assistance was provided to 61 applicants equipping their vessels with onboard lobster storage tanks. This program was reintroduced for a one-year period to benefit fishermen in areas of previous poor production.

Financial Incentives - Harbour Facilities

The program for improving available facilities in harbours around the coast consisted of three major areas: private wharves, marine haul-outs and fishermen's service sheds.

The fishermen's service shed program assisted in the construction of 11 facilities in the province. Each shed was built to departmental

construction standards.

Private wharf repair and new construction was carried out by fishermen's groups and local processors. Funding was available for approved material, up to a maximum of $15,000, to groups of four or more fishermen or registered fish plants. Other eligible applicants received a maximum of $10,000. During the year, 21 projects in this area were approved.

During the year, the department completed seven haul-out facilities, primarily of the cement slab design. Careful evaluation and follow-up was provided by technical staff.

Financial Incentives - Infrastructure

Four projects were undertaken to improve existing electrical facilities in and around fish processing plants. Of primary importance was the effect which such improvements would have on energy consumption.

Given the lack of adequate fresh water in many areas of the province, 17 projects received financial assistance.

Financial Incentives - Quality

This program area continued to be the most active and visible in relation to fish products. More than 200 applicants received assistance under two distinct areas of activity. Fish handling containers and cool- and cold-storage facilities provided a means for industry to upgrade the quality of their products.

Eighteen cool- and cold-storage projects were completed with both financial and technical assistance.

There were 182 fish-handling container applications processed during the year. The bulk of these requests were for insulated containers for use in plants and road transport of fish.

Ice-making and storage facilities continued to be funded by the federal Department of Fisheries and Oceans; however, the provincial department provided assistance to three ice-making projects, one being developmental in nature. This project used sea water and was installed aboard a Digby based vessel. Results were encouraging and further information can be obtained from the department.

Financial Incentives - Productivity

Three major areas of activity in this particular program were heat-pump drying systems, bait freezing and trawl tub storage facilities and vacuum packaging.

Twenty-one bait freezing and trawl tub storage projects were completed; six projects for heat-pump dryers were approved and a similar number of vacuum packaging units were installed. In addition, three unloading systems were completed during the year.

FISHERIES LOAN BOARD

During the 1984-85 fiscal year the number of loans approved continued to decline, due primarily to the lack of available funding. The emphasis placed on collections during the past two years was continued with relative success and the number of fishing vessels repossessed by the Board decreased for the second consecutive year.

Twelve Board meetings were held and of the 231 applications considered, 121 were approved, 63 were rejected or withdrawn and two were deferred. The remaining 45 were returned to the applicants because they did not qualify under the Board's regulations. An additional twenty-one loans already on the books of the Board were assumed by other fishermen. Gross value of approved loans totalled $5,359,613 with the net value, after down payments and subsidies, being $3,972,682. Vessel subsidies and grants amounted to $271,130 on 27 applications; 221 loans were paid off during the year.

The following table compares loan activity over the past five years:

Year Ending Mar.31	Loans Considered	Loans Approved	Net Amount Approved	No. of Outstanding Loans	Amount Outstanding
1981	914	738	$39,438,410	2,108	$ 92,434,367
1982	621	382	17,481,477	2,261	107,616,697
1983	435	225	5,475,263	2,234	108,460,960
1984	307	175	5,268,848	2,100	96,065,525
1985	231	121	3,972,682	1,966	84,994,445

In addition to the outstanding loans of $84,994,445 during the year there were commitments of $1,018,542. Advances during the year amounted to $7,750,851 and repayments on loans amounted to $15,915,497. A further $6,563,382 was received in interest. Write-offs during the year amounted to $1,619,784.

A breakdown of the type of loans approved is as follows:

	No.	Amount
New boats to 44'	49	$1,113,822.63
New boats 45' and over	6	828,905.65
Used boats to 44'	15	404,577.39
Used boats 44' to 44' 11"	3	383,999.20
Used boats 45' and over	4	838,400.00
Diesel engines	25	302,891.52
Gas engines	4	12,864.00
Deck equipment	1	1,840.00
Electronics	12	52,461.92
Conversions	1	7,320.00
Aquaculture	1	25,600.01
	121	$3,972,682.31

Loans approved, by counties, were as follows:

	No.	Amount
Annapolis	5	$ 509,839.20
Antigonish	3	39,870.99
Cape Breton	6	48,440.00
Colchester	2	23,760.02
Cumberland	6	66,315.45
Digby	12	584,092.05
Guysborough	5	254,380.55
Halifax	10	134,816.94
Hants	--	--
Inverness	10	128,250.69
Kings	--	--
Lunenburg	6	528,174.80
Pictou	8	59,626.86
Queens	3	124,200.00
Richmond	1	1,968.00
Shelburne	22	673,442.93
Victoria	5	141,271.60
Yarmouth	17	654,232.23
	121	$ 3,972,682.31

Technical and Inspection Services

During the fiscal year under review, 48 boats of all sizes were completed with Loan Board financing. Technical services were provided during both the preliminary planning and construction stages of these boats. Progress inspections were made by the inspection staff on 58 boats and at the end of the fiscal year ten of these boats were at various stages of construction and subject to further inspection. In addition, 75 used boats were inspected and appraised, 55 boats were inspected for engines, equipment and upgrading and two boat shops were inspected.

TRAINING AND FIELD SERVICE
TRAINING

The department's training programs operated on a wide basis serving the needs of the fishing industry, other government agencies and fishermen from overseas.

The services offered by the division are as follows:

	Inshore	Offshore	Processing
Navigation	Small Craft Master Fishing Master Class IV	Fishing Master I Fishing Master II Fishing Master III	
Engineering	Small Gas & Diesel Diesel Engines Hydraulics	Watchkeeping Engineer Fishing Vessel Chief Engineer 4th Class Engineer	Refrigeration for: Small Plant Operator Assistant to Plant Engineer
Fishing Gear Techology	Basic Skills in Repair & Construction	Deckhand Trawlerman	
Safety	Marine Emergency Duties I Fire Fighting Life Saving, Survival First Aid	Marine Emergency Duties II Life Saving, Survival First Aid	
Business Practices	Family Business Recordkeeping Taxation Financial Decision Making		Small Plant Operator Recordkeeping Finance Management
Quality Control	Included in Fishing Gear Program	Included in Trawlerman Course	Production Staff Fish Buyers
Advisory Services	Fishing Gear & Engineering	Design of Special Programs	Design of Special Programs

Transport Canada Certificate Examinations

There continues to be a strong demand for courses in navigation and safety. The main thrust of this demand came from the inshore fleet. While there is no current regulation for Transport Canada certification of the inshore fleet, there is considerable interest in safety and navigation training leading to certification as Fishing Master Class IV.

The safety and navigation certification programs were conducted at the School of Fisheries, Pictou, and in 45 locations throughout the province.

For 1984-85 the Training and Field Service Division achieved a high success rate in Transport Canada Navigation Certificate examinations, results of which are as follows:

Transport Canada Certificate	Number of Courses	Number of Fishermen Passed
Fishing Master Class IV	14	172
Fishing Master Class III	5	48
Fishing Master Class II	3	32
Marine Emergency Duties	18	232

(b) Overseas Fishery Training

This is a joint venture between the Department and the Canadian International Development Agency (CIDA/VADA).

	No. of Courses
Diesel Engines	1
Outboard Engines/Net and Gear Technology	1

(c) Other Government Agencies

	No. of Courses
Department of Fisheries and Oceans	1

Training Summary

The following table indicates the extent of fisheries training conducted over the past five years:

	1980/81	1981/82	1982/83	1983/84	1984/85
Number of Courses	96	112	77	65	76
Number of Trainees	1,100	1,141	779	824	1,001
Number Completed	1,008	1,107	763	824	1,001

New Programs - Quality Control

Owing to the delay in the implementation of regulations on quality standards of fish, the training programs scheduled to commence in 1984 will now be offered in the fall of 1985.

FIELD SERVICE

The fiscal year 1984/85 was an active and progressive one for the Field Service of the Department of Fisheries.

An increased number of Industrial Development Division applications for assistance, described elsewhere in this report, were taken by the fisheries representatives and rated according to impact and priority in the industry. More than 750 applications were filled and progress on the 542 approved projects was monitored by the representatives. Technical information was often supplied as well.

Approximately 500 confidential reports on loan applicants were completed by the Field Service for the Fisheries Loan Board. Assistance to fishermen on finding boat builders or used boats was a common occurrence. Through counseling by the fisheries representatives, fishermen in financial difficulty were often able to overcome problems or, in a few cases, were able to have other fishermen take over remaining debt loads on boats. Encouraging fishermen to bring loans up-to-date took on more importance and had a significant impact as a number of boats were repossessed. Supplying financial advice, forms and additional loan information remained an extremely important function of the Field Service.

Forty-five extension courses were promoted and to a large extent coordinated by the field service staff as training activity increased in fishing communities throughout the province. Fishermen were also encouraged to attend 31 courses offered at the School of Fisheries in Pictou.

In all nine geographical regions, the solving of local problems and the liaison aspects continued to be a significant component of the Field Service. Besides handling many individual and collective problems of fishermen, the fisheries representatives relayed requests for improved harbour facilities, better navigational aids, subsidies, licensing matters, etcetera, to federal departments for action.

Dispensing information on government programs and policies continued to be important. In addition, there was participation in industry meetings, exhibitions and career days. Some fisheries representatives served on a number of official committees including the Marine Safety Advisory Committee, Scallop Advisory Committee and the Annapolis Valley Affiliated Boards of Trade (Fisheries Sector).

Proposed dumpsites for dredging spoils were checked with local fishermen and the findings transmitted to the Department of Environment. Where good fish bottom could be destroyed or impaired, alternate dump sites with accurate co-ordinates were supplied.

Numerous employment projects were sponsored by the fisheries representatives during the year. The exact number of jobs created is hard to ascertain because in some instances they acted as the catalysts and had fishermen and plant owners as the official sponsors.

In addition, the Field Service was involved with the Department of Lands and Forests in the administration of fishermen's reserves, land acquisition and disposal.

MARINE RESOURCES DIVISION

The Marine Resources Division represents the department and the fishing industry of the province as a whole on numerous government-industry advisory committees. Its function is to ensure that the needs of the industry are adequately considered in the development and implementation of management plans for the various fisheries in which provincial fishermen participate. This year the division was represented on 34 official advisory committees dealing with groundfish, pelagics, scallops, marine plants and crustaceans as well as advising on bilateral agreement discussions with foreign nations. The division also represented the department on five offshore oil and gas committees and the Division Director is co-chairman of the joint Nova Scotia-Canada Fisheries Advisory Committee as provided for in the Canada-Nova Scotia Agreement on Offshore Oil and Gas Resource Management and Sharing. Through the oil and gas committees, the department ensures minimal interference with the fishing industry as a result of offshore exploration and development, and interacts directly with the Canadian Oil and Gas Lands Administration along with other federal and provincial departments involved in authorizing offshore activity.

The Resource Management and Research section of the division is divided into three units, each dealing with a particular species group: marine plants, invertebrates and pelagic fish. As well as providing expertise in their specific fields for management of the resource, two of these units are involved in research programs investigating species and stocks of specific interest to Nova Scotia. These studies are important to the development of new fisheries for the future and to improved management for the present. These programs involve considerable field work for which students are employed. Details of these studies are as follows:

Invertebrates

In 1984 the division continued its research program investigating various aspects of the growth and survival of stage four juvenile lobsters. Hatchery-reared animals were placed on the ocean bottom at selected sites in Guysborough County. Their response to various conditions was observed and the impact of their addition to the benthic community was assessed. Work is continuing to determine the effect of planting juvenile lobsters and the potential of artificial stock enhancement.

A lobster hatchery located at Dalhousie University provided about

25,000 stage four juveniles for field study last year. These lobsters were used for field research programs.

An underwater research team stationed in Port Bickerton, Guysborough County, conducted field work on juvenile lobsters. In addition, this group was available to carry out other fisheries-related underwater work in eastern Nova Scotia.

In 1984 the division participated in port sampling programs collecting information on lobsters, crabs and scallops at fishing ports around the province. Biological data, including size frequencies, catch effort and reproductive potentials, were gathered and will be used to assess the fisheries as they exist and to project how they may respond in the future.

Pelagic Fish

On-going studies of the Bras d'Or Lake and Pictou Island herring fisheries have examined some of the adult population characteristics of size and age composition, growth and reproductive maturity. A technical report was prepared on the early life history of herring in the Bras d'Or Lake, which provided information on: (1) spawning substrate, environmental conditions, egg density and mortality; and (2) larval production, dispersal and mortality.

Little information exists on the biology of gaspereau stocks which spawn in Nova Scotia rivers and lakes. In 1984 gaspereau stocks from the South West Margaree River and Pictou Harbour were again studied, since both river systems support commercial fisheries. A tagging study was conducted on the Margaree stock and there appears to be a high degree of homing back to the natal river system based on tag returns from the Margaree fishery. The population dynamics of the Margaree stock have been examined utilizing data from tag returns, age composition, catch and effort, and environmental influences. Studies of fat content in gaspereau stocks from the LaHave River, Pictou Harbour and Margaree River were implemented to assess species differences, fat depletion during migration, and as a factor in fish quality and spoilage. Technical reports are available on these studies.

ESTUARINE AND INLAND FISHERIES

This division is responsible for planning, developing and carrying out departmental policies and programs to conserve and enhance the fisheries resource at the land-water interface. Major responsibilities include:

1) producing, distributing and stocking trout to enhance public lakes throughout the province; production and supply of trout to private and commercial aquaculture; stream enhancement programs; and habitat inventories for potential trout enhancement;

2) conducting pilot-scale studies, applied research and extension work associated with the promotion, development and management of aquaculture undertakings in finfish, shellfish and marine plants in estuarine and inland waters;

3) providing departmental advice and technical expertise to both provincial and federal agencies and intergovernmental committees concerned with managing the resource base in the coastal zone;

4) carrying out resource inventories of estuarine and inland species and the preparation of resource mapping for input into multiple resource management decision making, commercial development and land use planning.

The divisional headquarters is maintained at the Fisheries School in Pictou. Regional operational facilities include an oyster hatchery and field demonstration site at Pleasant Point, Halifax County; and two hatcheries at Fraser's Mills, Antigonish County, and St. Peter's, Richmond County, producing trout for public lake enhancement, private pond operation and aquaculture. Division staff serve on a number of government and non-government committees and perform extension services to both the recreational and commercial components of inland fisheries and aquaculture development.

Aquaculture Development

Site Inspections

A preliminary site inspection service for new aquaculturists in the

province was continued. A breakdown is as follows:

Mussels	18
Oysters	4
Salmonids	2
Other	2

Seed Sale Program

Seed sales to growers during the year under review were as follows:

Mussels	2,415 collectors with seed
Oysters:	
O. edulis	913,000 sold
	780,000 for department use
C. Virginica	35,000 for department use
Quahaugs	20,000 for department use

Temperature Monitoring

The use of Ryan recorders to monitor seasonal temperatures at commercial growing sites and to locate additional sites continued during the year with seven sites being monitored through summer and winter. Results will be available during the following fiscal period.

New Research: Ocean Scallops (Placopectan magellanicus)

Over the past two years, the private sector has expressed interest in scallop culture and in response preliminary work has been started. In the fall, several successful spawnings were achieved in the hatchery, however no larvae successfully metamorphosized to set.

In September, Japanese style scallop seed collectors were placed at two locations in Liscombe Harbour to evaluate the potential of wild seed collection. Settlement was expected during October or November; results will be evaluated in late spring of 1985.

Starch Supplement of Oyster Diets

The sucessful use of a cornstarch diet supplement to evaluate tissue glycogen levels in *Ostrea edulis* seed was clearly demonstrated in a study conducted during the fall of 1983. Following a ten-day period of starch feeding, groups of *O. edulis* seed were placed along with control

groups in Spanish Ship Bay for overwintering. All groups were retrieved in June 1984 and a thorough evaluation was conducted to determine survivorship.

Results showed that while tissue glycogen levels could be evaluated by feeding of the supplement, no correlation between tissue glycogen levels and subsequent survivorship of seed could be demonstrated.

Plans for the 1985 season involve testing the starch supplement as an energy source for shellfish in warmer waters. If successful, the possibility would exist for partial replacement or improvement in performance of the expensive algal diet now in use.

Mussel Meat Yield and Storage

Through the 1984 season, staff assisted personnel of the Technical University of Nova Scotia in sampling mussels from four commercial farms in a study to determine seasonal meat condition and storage qualities. A detailed report is being prepared.

Quahaugs (Mercenaria mercenaria)

Historically, quahaugs were abundant in the estuaries of Petpeswick, Musquodoboit Harbour and Jeddore Harbour; however recent preliminary surveys have only located empty shells. In 1984 a small stock of live quahaugs was located in Jeddore Harbour from which a sample of 50 was removed to the hatchery for spawning. If successful, plans include returning a portion of the seed to the area in which the stock was found and retaining the remainder to evaluate their suitability for commercial culture.

Publications

Staff were responsible for the publication of two technical reports on projects completed during the year.

The first, entitled "An Experimental Evaluation of Interspecific Competition Between the European Oyster, *Ostrea edulis*, and the American Oyster, *Crassostrea virginica* in Nova Scotia", resulted from the Masters thesis research of Kevin Henderson. The main conclusion of this work was that for each species, relative survivorship was related to habitat with the European oyster doing better in oceanic, full salinity sites and the native oyster better in brackish water sites. The

study concluded that interspecific competition between the two should not be a significant factor should both be placed in the same location.

The second report, entitled "An Investigation of the Aquaculture Potential of the Bay Quahuag, *Mercenaria mercenaria*, the American Oyster, Crassostrea virginica and the Blue Mussel, *Mytilis edulis* in three Estuaries along the Northumberland Strait Coast of Nova Scotia", by Nancy Witherspoon, details the results of a survey of a number of underutilized shellfish leases in the Wallace-Malagash area to determine the feasibility of reactivating these. The three named species were sampled, and a preliminary survey taken of other, less abundant species.

Aquaculture Development Plan

In preparation for the signing of an Economic Regional Development Agreement (ERDA) for fisheries development between the province and the federal government, a detailed Aquaculture Development Plan was drawn up to serve as a general guideline for activities by the division. The plan pinpoints a wide range of research and development opportunities which exist within the aquaculture field in the province.

Extension Work

As in previous years, extension services provided to industry and others was significant as public interest in aquaculture continued to increase. A summary is as follows:

Telephone/written contacts	468
Visits/tours to hatchery	93
Conferences	3

During the 1984 school term, staff participated in the Community Schools Program by presenting a course entitled "An Introduction to Aquaculture - How to Get Started". This course included both classroom work and a field trip to the Pleasant Point facility. The course was well attended and will likely be offered again this fall.

Inland Fisheries

Production and Distribution

Inland fisheries activities expanded during the year in response to

increasing demands from the recreational sector for enhancement efforts. Stocking of more than 700,000 trout in 150 selected lakes constituted considerable increased effort over the previous year. Under the Federal-Provincial Agreement on Trout, federal hatcheries produced 150,000 fish for the province with the remainder being reared at the department's hatchery at Fraser's Mills, and from the St. Peter's hatchery formerly operated by Cape Breton Marine Farming and taken over by the department in November of 1984. The primary function of the latter facility remains the supply of seed stock Rainbow trout to private sea-cage operations in the Bras d'Or Lakes and the province as a whole. The hatchery will also produce fish for distribution for the recreational fishery.

Fish distributions were within the following program areas:

Fall fingerlings (wild replenishment) ..550,000 in 120 lakes
Spring yearlings (urban recreational) ..150,000 in 30 lakes

In addition, the egg and fry distribution program continued, involving volunteer services of about 30 public groups and interested citizens. Total distributions exceeded 1.2 million eggs and about 500,000 trout fry.

Juvenile trout were sold to 130 individuals operating private ponds in the province, either for recreational or commercial ventures. Seed stock was supplied to three commercial "fish-out ponds" as well as several salt water cage rearing operations on the mainland. Information and advice was provided to a number of individuals considering the construction of commercial fish hatchery facilities.

Surveys and Research

Trout feeder stream inventories have been expanded to provide the division with detailed habitat information on more than 1,100 kilometers of Nova Scotia trout streams. In addition to the provision of baseline data on enhancement opportunities, the data bank has been utilized by a variety of public and private agencies conducting research ranging from proposed stream diversions to pipeline route environmental impact studies. These stream data reports, by watershed, are being prepared for publication and will be available to the general public.

Several special projects were conducted during the year including the surveying of 20 lakes to determine their need and suitability for

enhancement and the techniques to be employed. An extensive research effort was undertaken on Trout Brook in Cape Breton to determine causes of the recent declining creel in the area. The results are being analysed and will be available in the future. In conjunction with this study, native Trout Brook strain fish were captured for retention as broodstock to develop a genotype naturally selected to the Lake Ainslie area for future enhancement efforts.

The division maintained the angling prohibition imposed on Giant's, Sullivan and Magginist Lakes to permit continued research on Speckled trout broodstock development. This research was begun by the federal Department of Fisheries and Oceans and was taken over by the division in 1982. This small sacrifice by local anglers will hopefully pay large dividends in future years.

The division located a supply of landlocked Atlantic Salmon, but unfortunately this broodstock did not meet the requirements of the federal Fish Health Protection regulations. A different source is actively being sought and hopefully landlocked salmon eggs will be in the hatchery system during 1985. Similarly, a steelhead (sea-run Rainbow trout) genotype has been selected and will be in the hatchery system in the next fiscal year. This species will be used to enhance a selected watershed area of the Bras d'Or Lakes which has received detailed study. With this pilot project, it is hoped to exploit some of the identified potential.

Trout habitat manipulation has been examined and several experimental projects undertaken. In an effort to consolidate those projects and provide expert advice to those involved, the division secured the services of Robert L. Hunt, Cold Water Group Leader, State of Wisconsin Department of Natural Resources. Mr. Hunt pioneered this field of activity 25 years ago and literally "wrote the book" on this subject. His visit to Nova Scotia included an extended series of field trips and two formal seminars attended by representatives of four federal and provincial departments, Nova Scotia Salmon Association, Nova Scotia Wildlife Federation, university researchers and members of the general public.

Extension Services

A public information program on the inland fisheries resource in the province was started during the year. The first major component was a preliminary Recreational Fishing Map, illustrating species and areas of

abundance of under-exploited recreational angling opportunities. Only those areas where trout fishing has been artificially enhanced were included. It is intended the map will help to utilize the recreational resource more fully and in addition remove much of the angling pressure which the "native" fishery is unable to withstand. The preliminary map was presented to the annual meeting of the Nova Scotia Wildlife Federation as was a draft Education Package which is also under development.

The Education Package, based on one used by the Salmon Enhancement Program in British Columbia and adapted for Nova Scotia, is being prepared with the advice and guidance of the Curriculum Specialist on Science with the Department of Education. The package is in response to a significant shortage of educational material on the recreational fishery and hopefully will be included in the Junior High school core curriculum on a selected basis in the 1985/86 school year, and province wide the following year.

More than 50 requests for information were responded to, using published materials from a wide variety of sources maintained in an extensive library covering all aspects of fin-fish culture.

In addition, the division was represented at more than 60 public meetings to provide guidance, but more importantly to gather information and learn from constructive criticism given by both user groups and the general public.

Long Term Management Plan

A significant development during the year was the preliminary formulation of a Long Term Management Plan for the inland fishery in Nova Scotia. With the assistance of the ERDA Fisheries Sub-Agreement, the plan will be phased in starting in the next fiscal year.

The plan covers five general areas as follows:

(1) Habitat: full and active co-operation between the Nova Scotia Department of Environment and the federal Department of Fisheries and Oceans in assessing, monitoring and protecting fish habitat;

(2) Production: in response to user-public demands, greatly accelerated hatchery production of trout fall fingerlings and spring yearlings through three departmental hatcheries at Fraser's Mills, St. Peters, and a new facility to be constructed on McGowan Lake, Queens County.

PLANNING AND FINANCE

This division provides administrative support to the department as a whole, including financial, personnel and office services. In addition, planning, economics and statistical services are provided to the department.

Market development and promotion activities continue to play an increasing role in the division's activities, in the attempt to improve market opportunities for fishery products from Nova Scotia.

Information services are also provided for both those in the fishing industry and the general public.

Some of the major projects undertaken by the division during the year under review include:

Fish Inspection Regulations

Regulations under the Nova Scotia Fisheries Act were enacted effective January 1, 1985 for the regulation and licensing of fish processing plants by the province. The regulations provide for the maintenance of sanitary conditions during handling and processing to ensure that fish products are wholesome.

An extensive information program was conducted prior to the licensing process to inform the industry of the implications of the new regulations.

Economic Studies and Projects

(a) Fishing Vessel Cost and Earnings Study

The cost and earnings study of fishing vessels in Nova Scotia has continued as a joint project with the federal Department of Fisheries and Oceans. Capital cost and operating data from a representative sample of various types of fishing vessels was collected and analysed to produce an annual report summarizing the economic performance of each vessel class in the fleet.

The information from this on-going study is used by government and the industry for a variety of purposes including financial analysis of investments in fishing craft, comparing the performance of various

types of vessels and fishing gear, and assessing the impact of specific cost and earnings factors such as increasing energy costs, vessel licensing policies and decreased groundfish quotas on fleet viability.

(b) Factors Affecting Boat Profit and Crew Shares

A study was conducted to investigate a number of factors which have an effect on the financial performance of nearshore fishing vessels. Most often fuel and rising operating and capital costs are singled out as affecting boat and crew earnings. Such factors are important; however, other factors were also examined for their relationship on financial performance. The effect of subsidies, construction costs, age of vessel, fish prices and lay arrangements for boat and crew earnings were studied at various catch levels.

(c) Impact on Fishing Industry by Planned Winter Ferry Service Closure at Yarmouth

In response to a planned curtailment of winter ferry service between Yarmouth and Bar Harbour, Maine, an analysis was undertaken to examine the effects such a closure would have on the fishery and to determine if a viable alternative was available.

The analysis included a survey of fishery use of the winter service, the value of the fishery resources affected, additional costs imposed through the use of alternate routes, and the ability of the Digby to Saint John ferry service to adequately handle additional traffic flows. Recommendations were made to alleviate potential harm to the fishery should the planned winter ferry service cutback become a reality.

Market Development and Promotion

(a) General

The primary role of this section is to provide comprehensive and timely information to the fishing industry on seafood market opportunities world wide, as well as to ensure that information on Nova Scotia seafood exporters and products are available internationally. In addition, the section assists in the promotion of Nova Scotia seafood both within and outside the province.

(b) Seafood Publications

The selection and availability of promotional material was improved during the year with one new recipe pamphlet and three point-of-sale seafood posters added to the existing collection of selling aids. In excess of 500,000 recipe pamphlets, seafood posters and other promotional materials were distributed to retailers, food service operators and the general public during the fiscal year under review.

The Directory of Nova Scotia Fish Products and the Retail Outlet Pamphlet are reprinted annually to reflect up-to-date information. The Directory is a buyers guide for seafood produced in the province and is distributed internationally. The Retail Outlet pamphlet lists the many outlets within the province where fresh and frozen seafood may be purchased by consumers.

(c) Seafood Advertising

In addition to traditional print and electronic media advertising, the department produced a major advertising supplement for the food service industry during the year. The supplement was distributed in both Canada and the United States through major trade magazines with a total circulation of about 175,000. The supplement featured menu suggestions utilizing Nova Scotia seafood products, merchandizing ideas for the operator, and instructions on preferred preparation methods aimed at maximizing the profitability of seafood as menu items. Major food service chains and distributors were very responsive to the supplement and requested additional copies to assist in their sales efforts.

(d) Food Shows and Demonstrations

The department participated at Seafood '85 in Boston, the most important seafood trade show held in the United States. The provincial companies participating were provided with display equipment and home economist services. This event continues to improve each year and is considered to be a highly effective trade show in relation to our significant market in the New England and Northeastern U.S. region.

The department's home economist continued to provide support services, such as seafood sample preparation, for processors and exporters attending national and international food shows.

Within the province, the department provided numerous seafood cooking demonstrations at exhibitions, shopping malls, consumer shows such as Food Fair Atlantic and Food Extravaganza as well as other public events. Such promotions are aimed at increasing the Nova Scotia consumer's awareness of seafood and how to prepare it. In addition, seafood information is frequently provided on radio shows aimed at the homemaker and recipes and other helpful hints are carried by newspapers in the province. During the fall months several workshops were conducted for food service operators to increase their awareness of the many species and methods of preparation available with the view to expanding the number of seafood items on restaurant menus.

(e) November Fish and Seafood Month

During the month of November, a major radio campaign was conducted to focus attention on seafood. The promotion was launched with a media reception. Contests for the consumer were run in conjunction with the radio campaign, which urged consumers to make seafood a regular item in their menu planning.

Public Information Services

(a) Administrative Information and Control System

During the year, negotiations were conducted with the system supplier to correct inadequacies identified as having been contained in the original design. These negotiations were unsuccessful and the Systems and Computer Services Division of the Department of Government Services were requested to make recommendations for the correction of ongoing problems.

(b) Nova Scotia Seafood Cookery

Sales of the department's seafood cookbook continued to be steady. By year end, a total of about 9,000 copies of the book had been sold throughout Canada.

(c) Weatheradio Canada

Tests of a high-powered repeater station at Oak Park, Shelburne County, proved successful in sending a good signal to Georges Bank under most weather conditions and in addition solved a poor reception area near Seal Island. The service also responded to calls by fishermen to

include portions of the U.S. marine weather forecasts. A new weather information buoy was placed on Georges Bank, providing accurate "existing conditions" information directly to fishermen through the Weatheradio Service.

(d) Exhibitions

The department was represented at the Atlantic Fisheries Trade Show, held in Yarmouth early in the year. In addition, exhibits were entered at the Nova Scotia Fisheries Exhibition and Fishermen's Reunion in Lunenburg and the Pictou Lobster Carnival.

STATISTICAL REVIEW

All fisheries production statistics given here for the calendar year 1984 are revised figures supplied through the courtesy of the federal Department of Fisheries and Oceans. They may be subject to minor adjustments as late returns from firms and individuals are received and processed in that Department.

Nova Scotia Fisheries Major Species Landings of those Species Yielding Over One Million Dollars Annually

(Listed in Descending Order of Value in 1984)

		Landings (Metric Tons)		Value ($,000)	
		1984	1983	1984	1983
1.	Lobsters	12,431	11,066	$81,449	$68,189
2.	Cod	144,909	151,275	56,962	63,164
3.	Scallops	28,549	44,070	43,481	60,336
4.	Haddock	31,297	38,924	22,137	23,972
5.	Herring	68,641	74,042	9,810	11,466
6.	Flounders	22,069	19,048	8,958	7,462
7.	Halibut	2,779	2,132	8,928	6,521
8.	Pollock	33,452	32,143	8,007	8,302
9.	Redfish	21,052	21,890	5,206	5,088
10.	Crabs	2,673	2,537	4,196	4,314
11.	Shrimp	1,878	1,886	3,607	3,805
12.	Swordfish	539	1,065	2,551	3,416
13.	Hake	7,986	7,766	2,305	1,135
14.	Mackerel	6,040	5,513	1,652	1,624
15.	Clams	1,816	2,039	1,568	1,636
16.	Cusk	3,126	4,366	1,296	1,705

Table I
Nova Scotia Fisheries
Landed and Marketed Value
1950 - 1984

(Value in $,000)

Year	Landed Value	Marketed Value
1950	$ 21,400	$ 38,819
1955	23,582	47,093
1960	26,094	51,753
1965	49,371	93,443
1970	55,652	105,939
1975	91,010	208,574
1980	230,911	438,799
1981	263,727	484,182
1982	259,411	523,191
1983	276,451	497,664
1984	265,335	490,870 (1)

(1) This is an estimate based upon recent average past relationships between landed and marketed values.

Table II
Nova Scotia Fisheries
Landings And Landed Value By Species Group

	Landings (Metric Tons)		Value ($,000)	
	1984	1983	1984	1983
Groundfish	270,157	282,053	$114,825	$119,533
Pelagic and Estuarial	77,024	82,117	15,290	17,507
Molluscs and Crustaceans	47,443	61,696	134,393	138,347
Miscellaneous (1)	8,106	11,329	827	1,064
	402,730	437,193	$265,335	$276,451

(1) Seaweeds, worms, livers, tongues, scales, roes, liver oil, skins.

Table III
Landed Value Of Fisheries By Counties

County (1)	Landed Value (2) ($,000)		Per Cent Change (3)
	1984	1983	1983/84
Shelburne	$54,232	$48,874	+11.0
Lunenburg	37,588	48,608	-22.7
Yarmouth	37,308	37,350	- 0.1
Digby	34,218	37,734	- 9.3
Guysborough	22,093	24,152	- 8.5
Cape Breton	24,882	22,047	+12.9
Queens	11,525	11,163	+ 3.2
Inverness	10,990	12,179	- 9.8
Halifax	9,635	12,405	-22.3
Victoria	6,320	5,743	+10.0
Richmond	4,805	4,171	+15.2
Pictou	4,562	5,032	- 9.3
Antigonish	2,588	2,951	-12.3
Cumberland	2,083	1,801	+15.7
Annapolis	1,176	891	+32.0
Colchester	828	1,045	-20.8
Kings	482	288	+67.4
Hants	20	17	+17.6
	$265,335	$276,451	- 4.0

(1) Counties are in order of the 1984 landed value

(2) Landed value includes groundfish, pelagic and estuarial, molluscs and crustaceans, viscera, seaweed and other.

(3) Increase (+); Decrease (-).

Table IV
Total Landed Weight of Fisheries By Counties

County (1)	Landed Weight (2) ($,000)		Per Cent Change (3)
	1984	1983	1983/84
Shelburne	64,534	68,293	– 5.5
Lunenburg	60,050	76,210	– 21.2
Cape Breton	52,498	47,185	+ 11.3
Digby	51,795	53,080	– 2.4
Yarmouth	50,556	59,737	– 15.4
Guysborough	53,780	57,222	– 6.0
Inverness	16,763	16,510	+ 1.5
Richmond	13,670	12,477	+ 9.6
Halifax	11,803	21,065	– 44.0
Queens	11,709	12,912	– 9.3
Victoria	7,263	4,998	+ 45.3
Pictou	3,721	3,301	+ 12.7
Antigonish	2,016	1,650	+ 22.2
Annapolis	989	875	+ 13.0
Colchester	749	933	– 19.7
Cumberland	539	522	+ 3.3
Kings	274	214	+ 28.0
Hants	21	9	+ 133.3
	402,730	437,193	– 7.9

(1) Counties are in order of the 1984 landed weight.

(2) Landed weight includes groundfish, pelagic and estuarial, molluscs and crustaceans, viscera, seaweed and other.

(3) Increase (+); Decrease (–).

Table V
Landed Weight And Landed Value Of Fisheries
By Species Group By Counties
(1984-1983)

County	Species Group (1)	Landed Weight (Metric Tons)		Landed Value ($,000)	
		1984	1983	1984	1983
Annapolis	Groundfish	382	356	$ 228	$ 238
	Pelagic	8	13	4	3
	Shellfish	598	505	942	649
	Other	1	1	2	1
Antigonish	Groundfish	997	787	326	195
	Pelagic	535	250	338	153
	Shellfish	484	613	1,924	2,603
	Other	—	—	—	—
Cape Breton	Groundfish	43,799	40,944	15,174	14,990
	Pelagic	5,015	4,310	776	753
	Shellfish	3,677	1,931	8,923	6,304
	Other	7	—	9	—
Colchester	Groundfish	—	—	—	—
	Pelagic	1	64	1	48
	Shellfish	748	869	827	997
	Other	—	—	—	—
Cumberland	Groundfish	10	12	4	15
	Pelagic	39	53	17	20
	Shellfish	490	457	2,062	1,766
	Other	—	—	—	—
Digby	Groundfish	26,667	27,061	12,989	13,542
	Pelagic	15,276	12,685	1,941	1,529
	Shellfish	9,847	13,332	19,282	22,661
	Other	5	2	6	2
Guysborough	Groundfish	45,515	43,190	16,496	15,458
	Pelagic	6,373	10,043	1,021	1,326
	Shellfish	1,892	3,989	4,576	7,368
	Other	—	—	—	—
Halifax	Groundfish	9,203	18,678	5,961	9,217
	Pelagic	2,069	1,935	798	1,080
	Shellfish	531	452	2,876	2,108
	Other	—	—	—	—

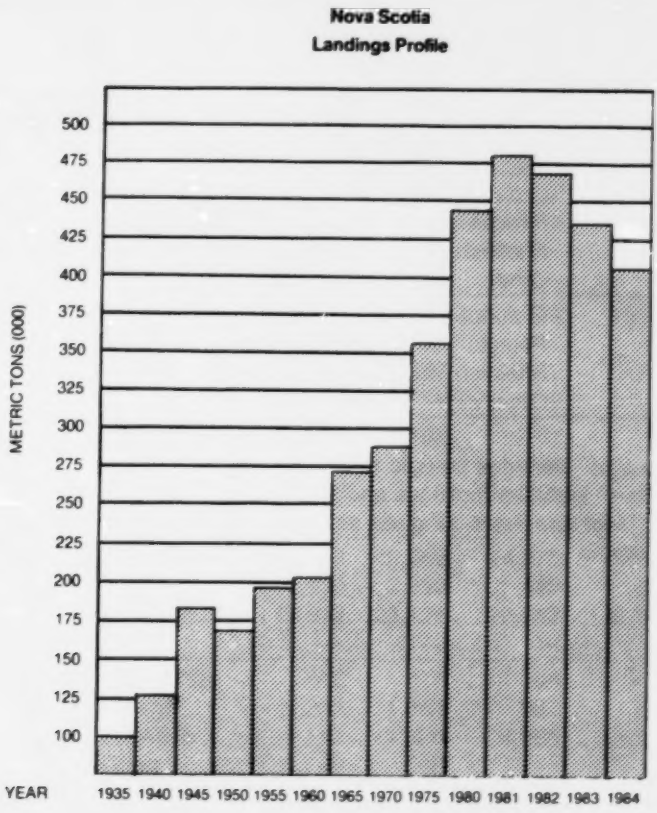
Table V continued

County	Species Group (1)	Landed Weight (Metric Tons)		Landed Value ($,000)	
		1984	1983	1984	1983
Hants	Groundfish	7	—	7	—
	Pelagic	15	9	13	17
	Shellfish	—	—	—	—
	Other	—	—	—	—
Inverness	Groundfish	12,749	12,749	4,509	4,530
	Pelagic	1,442	1,094	317	370
	Shellfish	2,569	2,667	6,162	7,279
	Other	3	—	2	—
Kings	Groundfish	118	102	81	82
	Pelagic	120	91	78	58
	Shellfish	36	19	323	144
	Other	—	2	—	4
Lunenburg	Groundfish	45,247	49,882	14,376	15,346
	Pelagic	2,190	2,900	429	685
	Shellfish	12,613	23,428	22,783	32,577
	Other	—	—	—	—
Pictou	Groundfish	402	215	144	38
	Pelagic	2,202	1,362	352	277
	Shellfish	1,117	1,326	4,066	4,666
	Other	—	398	—	53
Queens	Groundfish	7,815	8,830	4,976	5,162
	Pelagic	827	695	736	874
	Shellfish	3,067	3,387	5,813	5,127
	Other	—	—	—	—
Richmond	Groundfish	13,127	11,844	3,795	3,338
	Pelagic	359	493	88	125
	Shellfish	184	139	922	706
	Other	—	1	—	2
Shelburne	Groundfish	52,777	54,003	30,189	30,681
	Pelagic	2,778	4,450	1,884	2,472
	Shellfish	3,060	2,320	21,671	15,225
	Other	5,919	7,520	488	496

Table V Continued

County	Species Group (1)	Landed Weight (Metric Tons)		Landed Value ($,000)	
		1984	1983	1984	1983
Victoria	Groundfish	3,431	2,678	1,370	1,106
	Pelagic	2,661	1,241	1,057	687
	Shellfish	1,171	1,079	3,893	3,950
	Other	—	—	—	—
Yarmouth	Groundfish	7,910	10,717	4,200	5,598
	Pelagic	35,114	40,427	5,440	7,029
	Shellfish	5,361	5,188	27,348	24,217
	Other	2,171	3,405	320	506

(1) "Pelagic" includes pelagic and estuarial.
"Shellfish" includes molluscs and crustaceans.
"Other" includes livers, tongues, scales, roe and oil, sea plants, mammals, worms.


Nova Scotia
Landings Profile
METRIC TONS (000)
500
475
450
425
400
375
350
325
300
275
250
225
200
175
150
125
100
YEAR
1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1981 1982 1983 1984

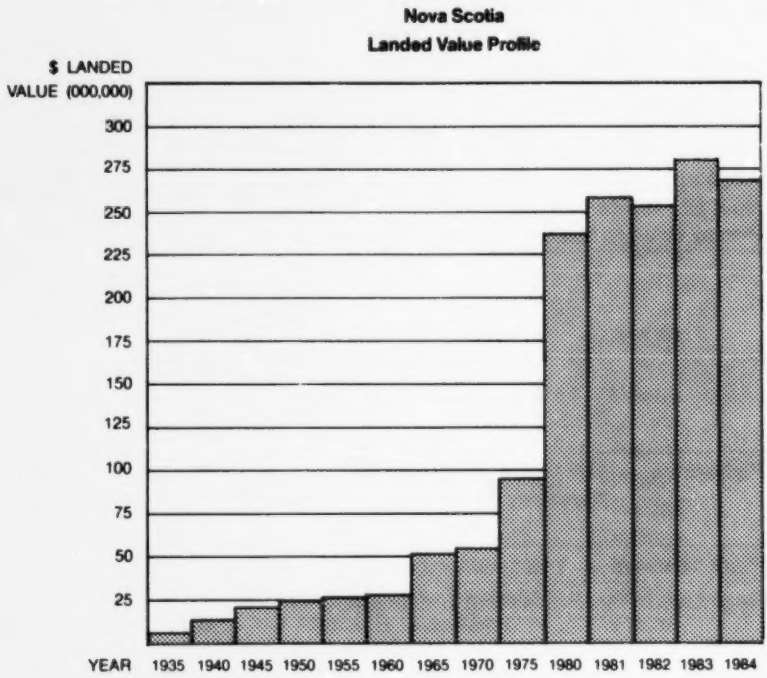

Nova Scotia
Landed Value Profile
$ LANDED
VALUE (000,000)
300
275
250
225
200
175
150
125
100
75
50
25
YEAR
1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1981 1982 1983 1984

Table VI
Atlantic Provinces Landings and Landed Value — 1984

	Landed Weight (Metric Tons)	Landed Value ($,000)
Nova Scotia	402,730	$265,335
Newfoundland	447,673	163,374
New Brunswick	95,918	72,407
Prince Edward Island	51,497	37,782

Table VII
Nova Scotia Fishery Profile
Employment

Fishermen — Full-time (10 months or more — 1984)	7,094
Part-time (1-10 months — 1984)	6,159
TOTAL	13,253
Plant Workers — Yearly Average — 1984	7,500
Registered Fish Processing Establishments — 1984	253

Fishing Craft

Length	Number of Boats
Less than 35'	3,747
35' — 39.9'	1,237
40' — 44.9'	1,031
45' — 49.9'	36
50' — 54.9'	31
55' — 59.9'	38
60' — 64.9'	129
65' — 99.9'	56
100' and Over	124
TOTAL	6,429

Department of Fisheries
Telephone 424-4560 — Halifax
485-4525 — Pictou
485-5056 — Pictou

Minister	**Hon. John G. Leefe**	**Halifax**
Secretary to the Minister	Mrs. S.M. Grandy	Halifax
Deputy Minister	**D.A. (Sandy) MacLean**	**Halifax**
Secretary to the Deputy Minister	Miss M.L. Evans	Halifax
Finance and Administration Division		
Director	J.A. Marsters	Halifax
Supervisor, Socio-Economic Support	D.C. Thomas	Halifax
Supervisor, Admistrative Services	C.G. Allen	Halifax
Personnel/Payroll Clerk	Mrs. D.A. Boudreau	Halifax
Accounting Clerk	P.J. Foran	Halifax
Accounting Clerk	Miss N.A. Smith	Halifax
Clerk Typist	Miss S.J. Kane	Halifax
Clerk Receptionist	Miss R. Henneberry	Halifax
Equipment Officer	F.S. MacKay	Pictou
Marketing Division		
Director	Ms. J.L. Raymond	Halifax
Secretary to the Director	Ms. J.L. Ganner	Halifax
Seafood Consultant	Mrs. A.E. Bryant	Halifax
Public Information Officer	K.R. Weston	Halifax
Home Economist	Mrs. M.C. O'Neil	Halifax
Marine Resources Division		
Director	A.A. Longard	Halifax
Secretary to the Director	VACANT	Halifax
Supervisor, Crustacean Resources	S.G. Roach	Halifax
Resource Management Officer	P.C. Underwood	Halifax
Resource Management Officer	R.H. Crawford	Halifax

Estuarine and Inland Fisheries

Director	L.L. MacLeod	Pictou
Secretary to the Director	Mrs. C. Cooper	Pictou
Biologist	G.M. Hill	Pictou
Biologist	B.C. Muise	Ostrea Lake
Maintenance Worker	R.A. Truen	Ostrea Lake
Biologist	D.A. MacLean	Fraser's Mills
Rearing Pond Attendant	D.J. MacDonald	Fraser's Mills
Rearing Pond Attendant	D.D. Murrant	Fraser's Mills
Rearing Pond Attendant	D. MacGrath	Fraser's Mills
Fisheries Technician	M. McNeil	St. Peters
Rearing Pond Attendant	M. MacPhail	St. Peters
Rearing Pond Attendant	D. MacNearney	St. Peters

Industrial Development Division

Director	G.R. Richard	Halifax
Secretary to the Director	Mrs. N.L. Riles	Halifax
Coordinator, Development Programs	D.F. Hansen	Halifax
Incentive Programs Assistant	Mrs. M.E. Meagher	Halifax
Development Officer	R.C. MacLean	Halifax
Manager, Marine Technology	VACANT	Halifax
Fisheries Technician	O.E. Egilsson	Pictou
Supervisor, Plants and Facilities	G.B. Scott	Halifax
Fisheries Technician	W.J. MacDonald	Halifax
Port Facilities Engineer	M.F. Giles	Halifax
Supervisor, Resource Technology	M.A. Drebot	Halifax

Nova Scotia Fisheries Loan Board

Executive-Director	J.A. Marsters	Halifax
Manager, Fisheries Loans	E.A. MacIntosh	Halifax
Secretary	Miss N.E. Corkum	Halifax
Clerk Typist	Mrs. R.A. Jardine	Halifax
Stenographer	Ms. D.M. Jollimore	Halifax
Chief Accountant	C.E. Decker	Halifax
Accounting and Insurance Clerk	Mrs. L.M. Fraser	Halifax
Accounting Clerk	Mrs. B.J. Tribble	Halifax

Loan Officer	J.P. Sarty	Halifax
Loan Officer	B.M. Allen	Halifax
Loan Officer	B.E. Cox	Halifax
Assistant Loan Officer	Mrs. L.M. Provender	Halifax
Technical Services Officer	M. Myketyn	Halifax
Fishing Vessel Inspector	B.G. Stockley	Halifax
Fishing Vessel Inspector	W.R. Buffett	Halifax
Fishing Vessel Inspector	T. Prewett	Halifax
Loans Administrator	E.J. Pellerin	Halifax

Training and Field Services Division

Training

Director	J.J. McLevey	Halifax
Secretary to the Director	Mrs. B.J. O'Brien	Halifax
Supervisor, Fisheries Training Centre	D.F. Robertson	Pictou
Chief Clerk	Miss S.M. Bowron	Pictou
Instructor (Navigation)	L.M. Dube	Pictou
Instructor (M.E.D.)	A.A. Kaiser	Pictou
Instructor (Navigation/M.E.D.)	D.B. MacCallum	Pictou
Instructor (Engines/M.E.D.)	J.W. Grant	Pictou
Instructor (Engines)	Ira Grant	Pictou
Instructor (Engines)	G. Gauthier	Pictou
Instructor (Business)	Miss B.J. Wright	Pictou
Instructor (Nets and Gear)	A.F. Tobey	Pictou
Maintenance Worker	E.G. Dalton	Pictou
Maintenance Worker	C. Steele	Pictou
Housekeeping Aide	Mrs. L. Betts	Pictou

Field Services

Supervisor, Field Service	C.F. MacKinnon	Halifax
Fisheries Representative	C.W. Rankin	Pictou
Fisheries Representative	L.A. Tobey	Port Hood
Fisheries Representative	A.P. Kehoe	Petit de Grat
Fisheries Representative	G.T. Boudreau	Little Dover
Fisheries Representative	G.C. Mossman	Rose Bay
Fisheries Representative	G.A. Nickerson	Clark's Harbour
Fisheries Representative	A.J. Muise	Middle West Pubnico
Fisheries Representative	R.K. McDormand	Granville Ferry

Department of Fisheries
Ordinary Expenditure

Fiscal Year Ending March 31	Total Ordinary Expenditures
1965	$ 230,787
1966	340,653
1967	321,742
1968	530,166
1969	412,577
1970	458,034
1971	1,020,778
1972	1,373,784
1973	908,457
1974	3,138,359 (1)
1975	1,088,534
1976	661,763
1977	2,350,456
1978	3,149,131
1979	5,377,213
1980	5,841,649
1981	11,047,135 (2)
1982	13,758,223
1983	12,642,688
1984	10,891,506
1985	11,496,630

(1) More than $2 million was spent in the form of special assistance to help the industry recover from a storm in June 1973.

(2) Beginning in 1981, capital advance interest charges for the Fisheries Loan Board are included in the Department of Fisheries estimates. These charges were previously accounted for under Department of Finance estimates.